

REMARKS

Reconsideration of the application in light of the above amendments and the following remarks is respectfully requested.

Status of the Claims

Claims 1-15 are pending. Claims 1-12 have been amended. Claims 4-11 have been amended, without narrowing the scope of the subject matter contained therein, to change the introductory article of the preamble, as suggested by the Examiner, and in the case of claims 5 and 10, to also correct typographical informalities. Claims 13-15 have been added. No new matter has been added.

Allowable Subject Matter

Applicants appreciatively acknowledge the Examiner's indication of allowable subject matter in claims 5, 6 and 8. Added claim 13 recites all the subject matter from original claim 5 and its base and intervening claims. Thus, Applicants submit that claim 13 and its dependent claims 14 and 15 are in condition for allowance.

Rejection Under 35 U.S.C. § 102

Claims 1-3 and 12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 6,140,966 to Pankinaho.

Applicants submit that Pankinaho discloses a planar antenna radiating element 100 with sections 101, 102, where holes 170, 170 in each of the sections has the effect of widening the respective section's resonance band. The portion of the radiating element with the holes 170, 170 extends laterally outside the ground plane 140. (Pankinaho, column 7, line 56 through column 8, line 5 and FIGS. 10a-10b.) Pankinaho, FIG. 12a discloses a planar antenna where there is a notch 141 in the ground plane, where the shape of the ground plane is used in

conjunction with the holes 170, 170 to adjust the resonance frequencies. The receiver connector 110, transmitter connector 120, and short-circuit connector 130 are all located at a corner of the planar antenna remote from notch 141. (Pankinaho, column 8, lines 17-29 and FIG. 12a.) Pankinaho teaches that removal of the ground plane under holes 170, 170 by placement of notch 141 in underlying relationship to the holes 170, 170 is what effects the match of the antenna sections 101, 102 to free space.

In contrast to what is taught in Pankinaho, the present claimed invention effects the match of the antenna without the need for the placement of a slot in underlying relationship to holes in the radiating plane. The Specification, at page 4, lines 10-26, discloses a planar antenna with a rectangular radiating plane 320 having two branches B1, B2 of different lengths to produce two operating bands. Near a corner of the radiating plane, a short-circuit conductor 332 extends from a long side of the radiating plane to a ground plane, the long side of the radiating plane is parallel to a short side of the ground plane. A feed conductor 331 joins to the radiating plane near the same corner as the short-circuit conductor, but on a short side of the radiating plane. The ground plane has a first slot 215 located near the short circuit point and extending parallel to the short side of the ground plane. The arrangement of the short-circuit conductor 332 and feed conductor 331 makes possible the placement of the first slot 215 closer to the short-circuit conductor than disclosed in the prior art.

Amended claim 1 recites “a slot being located in an edge of the ground plane relatively near the short-circuit point and the slot traveling substantially parallel to a long side of the radiating plane.” In contrast, Pankinaho does not disclose the slot starting point located relatively near the short-circuit point and traveling substantially parallel to a long side of the radiating plane. Therefore, Pankinaho does not disclose each and every feature of amended

claim 1. Thus, Pankinaho does not anticipate amended claim 1. Applicants submit that claim 1 is patentable over Pankinaho. Claims 2 and 3 depend from claim 1, and Applicants submit that claims 2 and 3 are patentable for at least the same reasons as claim 1.

Claim 12 has been amended to recite the feature “a slot being located in an edge of the ground plane relatively near the short-circuit point and the slot traveling substantially parallel to a long side of the radiating plane.” Applicants submit that claim 12 is patentable over Pankinaho for the same reasons discussed above for claim 1.

Withdrawal and reconsideration of the rejection is requested.

Claims 1-4, 9-10 and 12 stand rejected under 35 U.S.C. § 102(a) as being anticipated by PCT Application No. WO 01/89031 to Avantego AB.

Avantego AB discloses a ground plane 12 with slits 121, 122, where the “number of slits, their shape and position can vary with respect to the desired antenna characteristics.” (Avantego AB, page 5, lines 19-25.) Additionally, Avantego AB discloses that “a capacitive load is formed by either a dielectric material placed at certain locations or bringing the metal closer to the ground plane. Both methods of forming a capacitive load require three-dimensional structures.” (Avantego AB, page 2, lines 8-10)

Independent claims 1 and 12 both recite a non-conductive ground plane slot to improve matching of the antenna, where the slot is “located in an edge of the ground plane relatively near the short-circuit point and the slot traveling substantially parallel to a long side of the radiating plane.” In contrast, Avantego AB discloses three dimensional structures to match the antenna, and not a non-conductive ground plane slot located as set forth in claims 1 and 12. Therefore, Avantego AB does not disclose each and every feature of claims 1 and 12. Thus, Avantego AB does not anticipate claims 1 and 12. Claims 2-4 and 9-10 depend from claim 1,

and Applicants submit that claims 2-4 and 9-10 are patentable over Avantego AB for at least the same reasons as discussed above for claim 1. Withdrawal and reconsideration of the rejection is requested.

Maoz discloses a printed wire board 4 with two stub reflectors 54a, 54b defined by a pair of slots 53a, 53b located in the ground plane at the opposite end from that carrying an internal antenna 10. (Maoz, paragraph 0043.) The slots 53a, 53b act as two reflectors which improve the characteristics of the planar antenna in its lower operating band by making the electric size of the ground plane greater. The slots do not act alone, but in conjunction with the stub reflectors 54a, 54b, where the ground plane has been removed. This approach is not the claimed invention. Applicants submit that Maoz does not disclose “a slot being located in an edge of the ground plane relatively near the short-circuit point and the slot traveling substantially parallel to a long side of the radiating plane” as recited in independent claims 1 and 12. Therefore, Maoz does not disclose each and every feature of claims 1 and 12. Thus, Maoz does not anticipate claims 1 and 12. Claims 2-4 and 9-11 depend from claim 1, and Applicants submit that claims 2-4 and 9-11 are patentable over Maoz for at least the same reasons discussed above for claim 1. Withdrawal and reconsideration of the rejection is requested.

Claim 7 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Pankinaho or Maoz in view of U.S. Patent No. 4,367,475 to Schiavone.

capacitor. The Examiner cites Schiavone as disclosing a capacitor across a slot, and states that it would have been obvious for a person of ordinary skill in the art at the time of the invention to have combined either Pankinaho or Maoz and Schiavone to achieve the invention of claim 7.


Schiavone discloses a capacitor connected across a radiating slot 10 formed by the opposed edges 12, 14 of two separate conducting plates 16, 18 disposed above a ground plane 20. (Schiavone, column 2, lines 28-34.)

Claim 7 recites “a capacitor across said at least one slot in the ground plane.” Applicant submit that the radiating slot 10 disclosed in Schiavone is not a slot in the ground plane as required in claim 7. Additionally, claim 7 depends from claim 1 and recites the features of its base claim as if set forth in its entirety therein. Applicants submit that Pankinaho or Maoz and Schiavone neither discloses nor suggests the features recited in claim 7, as demonstrated above for claim 1. Therefore, the Examiner has not met the burden to establish a *prima facie* case of obviousness over claim 7. Withdrawal and reconsideration is requested.

CONCLUSION

Each and every point raised in the Office Action mailed December 6, 2004 has been addressed on the basis of the above amendments and remarks. In view of the foregoing it is believed that claims 1-15 are in condition for allowance and it is respectfully requested that the application be reconsidered and that all pending claims be allowed and the case passed to issue.

Respectfully submitted,


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